

IOWA STATE UNIVERSITY

Center for Multiphase Flow Research and Education

Computational thermal multiphase flows with applications to metallic additive manufacturing

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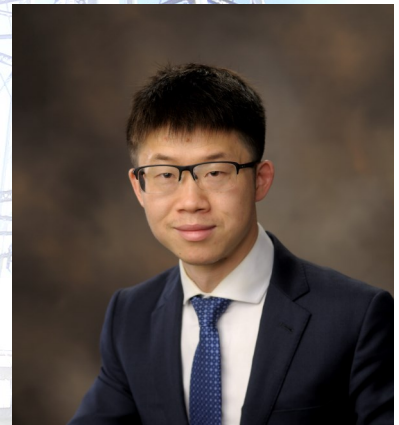
Wednesday, October 23, 10 am, 2004 Black Engineering

Abstract

In this presentation, I will present a computational framework for thermal multiphase flows, which comprehensively considers fluid dynamics, thermodynamics, phase transition (melting, solidification and evaporation), surface tension, Marangoni stress, and interfacial topological changes. The formulation is thoroughly validated by a series of benchmark problems, including the 2018 NIST additive manufacturing benchmark experiment. The framework shows excellent potential in a wide arrange of applications in metallic additive manufacturing.

Biography

Jinhui Yan is currently an assistant professor at department of civil and environmental engineering at University of Illinois Urbana-Champaign. He obtained his B.S. from Wuhan University, M.S. from Peking University, and Ph.D. from the University of California, San Diego (UCSD). He received many awards for academic excellence, such as Robert M. and Mary Haythornthwaite Young Investigator Award from American Society of Mechanical Engineers (ASME), World Congress for Computational Mechanics Travel Award from International Association for Computational Mechanics, Charles Lee Powell Fellowship from UCSD, Outstanding Award for Ph.D. Student Abroad from the Chinese government, Presidential Fellowship from Peking University, and National Scholarship. He delivered several invited keynote presentations in World Congress for Computational Mechanics, U.S. National Congress for Computational Mechanics and ASCE Engineering Mechanics Institute Conference as well as many leading research universities in the world. He is a committee member of Computational Mechanics of ASCE/EMI and an external reviewer of several research journals and funding agencies.



Refreshments will be provided.

This seminar counts towards the ME 600 seminar requirement for Mechanical Engineering graduate students.

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